1. A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

coupling an electrical circuit to the transducer such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

2. A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

coupling an electrical circuit to the transducer such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

3. A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

measuring a mechanical state with a sensor,

controlling an electrical circuit coupled to the transducer based on the measured mechanical state,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

4. A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

coupling an electrical circuit to the transducer,

controlling switches of the electrical circuit such that the switches switch at a frequency greater than two times an excitation frequency of the disturbance,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

5. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch, and

a storage element for storing extracted power.

6. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone, the electrical circuit including

a rectifier circuit including first and second input terminals and first and second output terminals, the first and second input terminal being connected across first and second terminals of the transducer,

an inductor including first and second terminals, the first terminal being connected to the first output terminal of the rectifier circuit, and

a subcircuit connected to the second terminal of the inductor and the second output terminal of the rectifier circuit, the subcircuit including a switch, and

a storage element for storing extracted power.

7. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

8. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone,

a storage element for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

9. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch, and

a storage element for storing extracted power.

10. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone, the electrical circuit including

a rectifier circuit including first and second input terminals and first and second output terminals, the first and second input terminals being connected across first and second terminals of the transducer,

an inductor including first and second terminals, the first terminal being connected to the first output terminal of the rectifier circuit, and

a subcircuit connected to the second terminal of the inductor and the second output terminal of the rectifier circuit, the subcircuit including a switch, and

a storage element for storing extracted power.

11. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

12. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone,

a storage element for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

13. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a mechanical disturbance,

an electrical circuit including switching electronics connected across the transducer, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch,

control logic which switch the switching electronics at a frequency greater than two times an excitation frequency of the disturbance, and

a storage element for storing extracted power.

14. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a mechanical disturbance,

an electrical circuit including switching electronics connected across the transducer, the electrical circuit including

a rectifier circuit including first and second input terminals and first and second output terminals, the first and second input terminals being connected across first and second terminals of the transducer,

an inductor including first and second terminals, the first terminal being connected to the first output terminal of the rectifier circuit, and

a subcircuit connected to the second terminal of the inductor and the second output terminal of the rectifier circuit, the subcircuit including a switch,

control logic which switch the switching electronics at a frequency greater than two times an excitation frequency of the disturbance, and

a storage element for storing extracted power.

15. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a mechanical disturbance,

an electrical circuit including switching electronics connected across the transducer,

control logic which switch the switching electronics at a frequency greater than two times an excitation frequency of the disturbance, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

16. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a mechanical disturbance,

an electrical circuit including switching electronics connected across the transducer,

control logic which switch the switching electronics at a frequency greater than two times an excitation frequency of the disturbance,

a storage element for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

17. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer and capable of extracting power from the transducer and applying power to the transducer during different intervals in the course of the disturbance, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch, and

a storage element for storing extracted power.

18. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer and capable of extracting power from the transducer and applying power to the transducer during different intervals in the course of the disturbance, the electrical circuit including

a rectifier circuit including first and second input terminals and first and second output terminals, the first and second input terminals being connected across first and second terminals of the transducer,

an inductor including first and second terminals, the first terminal being connected to the first output terminal of the rectifier circuit, and

a subcircuit connected to the second terminal of the inductor and the second output terminal of the rectifier circuit, the subcircuit including a switch, and

a storage element for storing extracted power.

19. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer and capable of extracting power from the transducer and applying power to the transducer during different intervals in the course of the disturbance, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

20. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer and capable of extracting power from the transducer and applying power to the transducer during different intervals in the course of the disturbance,

a storage element for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

21. A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

a sensor for measuring a mechanical state, and

an electrical circuit coupled to the transducer and controlled based on the measured mechanical state, the electrical circuit being configured to extract power from the transducer and store extracted power.

22. The system of claim 21 wherein the electrical circuit comprises a resonant circuit.

23. The system of claim 21 wherein the electrical circuit comprises switches controlled based on the measured mechanical state.

24. The system of claim 21 further comprising a plurality of transducers configured for coupling to the disturbance.

25. A method, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance, and

coupling an electrical circuit to the disturbance, wherein coupling the electrical circuit includes controlling switches such that all electrical power supplied to the transducer is derived from power extracted from the mechanical disturbance.

26. The method of claim 25 wherein power for the entire circuit is derived from power extracted from the mechanical disturbance.

27. The method of claim 25 wherein a part of the circuit is powered by an external source.

28. The method of claim 25 wherein a part of the circuit is powered by a battery.

29. The method of claim 25 further comprising the step of applying extracted power to an external load.

30. The method of claim 25 wherein the step of coupling the electrical circuit includes coupling a resonant circuit to the transducer.

31. The method of claim 25 wherein controlling switches includes controlling a duty cycle of the switches.

32. The method of claim 25 wherein the step of controlling includes monitoring a system state.

33. The method of claim 32 wherein controlling switches includes controlling a duty cycle of the switches based on the system state.

34. The method of claim 25 wherein the step of coupling the electrical circuit acts to increase oscillations of the disturbance.

35. The method of claim 25 wherein the step of coupling the electrical circuit acts to dampen oscillations of the disturbance.

36. The method of claim 25 wherein the step of coupling the transducer includes coupling a plurality of transducers to the disturbance.

37. A system, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer, the electrical circuit containing active switches such that all electrical power supplied to the transducer is derived from power extracted from the mechanical disturbance.

38. The system of claim 37 configured such that power for all of the circuit is derived from power extracted from the mechanical disturbance.

39. The system of claim 37 further comprising an external power source for supplying power to a part of the circuit.

40. The system of claim 39 wherein the external power source comprises a battery.

41. The system of claim 37 configured for damping oscillations of a disturbance.

42. The system of claim 37 wherein the electrical circuit comprises:

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch.

43. The system of claim 37 wherein the electrical circuit comprises:

a rectifier circuit including first and second input terminals and first and second output terminals, the first and second input terminals being connected across first and second terminals of the transducer,

an inductor including first and second terminals, the first terminal being connected to the first output terminal of the rectifier circuit, and

a subcircuit connected to the second terminal of the inductor and the second output terminal of the rectifier circuit, the subcircuit including a switch.

44. The system of claim 37 wherein the electrical circuit includes amplifier electronics.

45. The system of claim 44 wherein the amplifier electronics comprise an H-bridge.

46. The system of claim 44 wherein the amplifier electronics comprise a half bridge.

47. The system of claim 44 wherein the electrical circuit further includes control electronics for controlling the amplifier electronics.

48. The system of claim 47 wherein the control electronics control a duty cycle of the amplifier electronics.

49. The system of claim 37 wherein the electrical circuit further includes a sensor for monitoring a system state.

50. The system of claim 37 further comprising a storage element.

51. The system of claim 50 wherein the storage element comprises a capacitor.

52. The system of claim 50 wherein the storage element comprises a rechargeable battery.

53. The system of claim 50 wherein the storage element comprises two components connected in series, a side of the transducer being connected to a node between the two components.